



Registration No: 1998/009584/06

# THE SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED

## STANDARD SPECIFICATIONS FOR OPERATIONS AND MAINTENANCE OF CTROM PROJECTS: GENERIC SCOPE OF WORKS

OCTOBER 2010

VOLUME 2 BOOK 1a  
PART B

ISSUED BY:

THE CHIEF EXECUTIVE OFFICER  
SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED  
P O BOX 415  
PRETORIA  
0001



Registration No: 1998/009584/06

# **THE SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED**

## **STANDARD SPECIFICATIONS FOR OPERATIONS AND MAINTENANCE OF CTROM PROJECTS: GENERIC SCOPE OF WORKS**

OCTOBER 2010

**VOLUME 2 BOOK 1a  
PART B**

**ISSUED BY:**

**THE CHIEF EXECUTIVE OFFICER  
SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED  
P O BOX 415  
PRETORIA  
0001**

**TABLE OF CONTENTS**

<b>PART B.</b>	<b>GENERIC SCOPE OF WORKS.....</b>	<b>B-3</b>
1.	MISCELLANEOUS.....	B-4
1.1	Introduction.....	B-4
1.2	Applicable Sections of the Document .....	B-4
2.	BACKGROUND AND CONTEXT .....	B-4
2.1	Introduction.....	B-4
2.2	Comprehensive Toll Road Operations and Maintenance (CTROM) Context .....	B-5
2.3	Toll Strategy Migration Framework and Triggers .....	B-5
2.4	Electronic Toll Collection Context.....	B-7
2.5	Contracted Parties and Responsibilities within CTROM.....	B-7
2.6	The Employer’s Baseline Principles.....	B-10
2.7	The National ETC Interoperability Framework.....	B-10
2.8	Functional Overview for CTROM Projects .....	B-13
3.	KEY CTROM OBJECTIVES.....	B-14
3.2	Key Operations Objectives from a Road User Perspective .....	B-14
3.3	Key “Corporate” Objectives from an Employer Perspective.....	B-15
3.4	Key “Project” Objectives from an Employer Perspective.....	B-16
3.5	Critical Success Factors of the Project.....	B-16
4.	COMMERCIAL FRAMEWORK .....	B-17
4.1	Contract Period.....	B-17
4.2	Key Employer Policy Decisions.....	B-17
5.	Operations FaciLITIES.....	B-21
6.	Allowance for Project Phases .....	B-21
6.1	Design Build Activities (in no particular order or priority or duration):.....	B-21
6.2	Operations Service Activities.....	B-22
7.	GENERIC SCOPE OF WORKS.....	B-23
7.1	Toll System Supply, Integration and Maintenance Requirements.....	B-23
7.2	Toll Collection Services.....	B-23
7.3	Point of Presence Customer Services Operations .....	B-24
7.4	Facilities Maintenance .....	B-25
7.5	The Supply of Operational Facilities .....	B-26

<b>7.6</b>	<b>Mobile Law Enforcement (for ORT Operations).....</b>	<b>B-26</b>
<b>7.7</b>	<b>General Operations Mobilisation and Training.....</b>	<b>B-27</b>
<b>8.</b>	<b>ESTABLISHMENT, POWER SUPPLY AND OTHER SERVICES .....</b>	<b>B-28</b>
<b>9.</b>	<b>QUALITY MANAGEMENT .....</b>	<b>B-29</b>
<b>10.</b>	<b>MANAGEMENT OF THE ENVIRONMENT.....</b>	<b>B-30</b>
<b>11.</b>	<b>REQUIREMENTS IN TERMS OF GOVERNMENT’S PROGRAMME FOR BROAD BASED BLACK ECONOMIC EMPOWERMENT .....</b>	<b>B-30</b>
<b>12.</b>	<b>REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS.....</b>	<b>B-30</b>

---

**PART B.            GENERIC SCOPE OF WORKS**

---

## **1. MISCELLANEOUS**

### **1.1 Introduction**

1.1.1 This section of the Scope of Works description forms an integral part of the Employer's Requirements and must be read together with Volume 2 Book 1a and Volume 2 Books 2a to 8a.

### **1.2 Applicable Sections of the Document**

1.2.1 This document comprises, inter-alia, the following key sections:

#### ***Background and Context***

- *The Comprehensive Toll Road Operations and Maintenance (CTROM) Context*
- *Toll Strategy Migration Framework and Triggers*
- *The ETC Context*
- *Contracted Parties (Responsibilities)*
- *The National ETC Interoperability Framework*
- *A Functional Overview of CTROM Projects*

#### ***Key CTROM Objectives***

#### ***Commercial Framework for CTROM***

#### ***Scope of Works Description (Generic)***

## **2. BACKGROUND AND CONTEXT**

### **2.1 Introduction**

2.1.1 The Employer is the South African National Roads Agency Limited (SANRAL). SANRAL is a public company constituted in accordance with the South African National Roads Agency Limited and National Roads Act 1998 (Act No. 7 of 1998) and is an organ of state charged with the obligation to develop and maintain the national road network in South Africa.

## **2.2 Comprehensive Toll Road Operations and Maintenance (CTROM) Context**

2.2.1 CTROM contracts are toll operations and maintenance contracts entered into between the Employer and the Contractor to perform the following tasks or activities:

- (a) Upgrade or supply a Tolling System complete, per Toll Facility (either a Toll Plaza or Tolling Point);
- (b) Collect all due toll revenue from road users on the applicable toll road;
- (c) Operate and maintain all Toll Facilities (either Toll Plazas or Tolling Points); and
- (d) Provide selected route services, as applicable to the Contract.

2.2.2 The following types of tolling facilities are applicable to CTROM operations:

- (a) Conventional Toll Plazas (where both manual and ETC transactions are accepted);
- (b) Hybrid Toll Plazas which are conventional Toll Plazas with some dedicated ETC lanes;
- (c) Conventional / ORT plazas which are conventional Toll Plazas with Open Road Tolling lanes; and
- (d) (Open Road Tolling) Tolling Points.

2.2.3 A key Employer requirement in respect of toll strategy is that the use of Electronic Toll Collection shall be pro-actively pursued and maximised in terms of market share. The Employer regards the increased use of Electronic Toll Collection as an important strategic objective with major benefits in terms of reduced space and cost requirements, reduced delays and reduced environmental impacts at Toll Plaza locations.

2.2.4 It is envisaged that the toll collection process at plazas will progress over time from the Conventional Toll Plaza type application initially, to that of Hybrid or Conventional / ORT Toll Plaza applications, whichever most feasible, and then ultimately to ORT operations.

## **2.3 Toll Strategy Migration Framework and Triggers**

2.3.1 The generic guidelines or trigger points for the migration to each type of process application are as follows, with the project-specific detailed requirements, as applicable, outlined in Project document (Volume 3).

- (a) From the commencement of toll collection, every toll lane shall be equipped to operate as a mixed manual/ETC lane.
  
- (b) In the case of Toll Plazas where the potential ETC market share in one direction of travel is expected to exceed 250 vehicles per hour during the daily peak period, at least one “boom down” Dedicated ETC lane shall be supplied in such a direction of travel. The number of “boom down” Dedicated ETC lanes to be supplied will be dependent upon the number of frequent users at the Toll Plaza, but the Employer requires a bias towards slightly more Dedicated ETC lane capacity than required in order to ensure that ETC is experienced as an attractive non-stop option by toll road users.
  
- (c) As traffic volumes increase in the situation where a conservative gradual introduction of ETC takes place, more “boom down” Dedicated ETC lanes shall be introduced, hand in hand with a marketing and pricing strategy to increase the attractiveness of obtaining an ETC tag and using Dedicated ETC lanes rather than manual mixed manual/ETC lanes.
  
- (d) In respect of ETC for heavy vehicles:
  - (i) Heavy vehicles shall not be allowed in any Dedicated ETC lane(s) on the right hand side of the direction of travel.
  
  - (ii) If a Dedicated ETC lane(s) for heavy vehicle traffic is deemed to be warranted, such a lane shall be located on the left-hand side as vehicles approach a Conventional or Hybrid Toll Plaza or the Conventional section of a Conventional/ORT Toll Plaza and speeds in these lanes shall be regulated to be 20 km/hour or lower.
  
- (e) Over and above the addition of Dedicated ETC lanes, some or all the Dedicated ETC lanes may be replaced ultimately by an Open Road Tolling section, with the Toll Plaza then having been converted to a so-called Conventional/ORT Toll Plaza consisting of a mixed manual/ETC lane section and an Open Road Tolling section.
  
- (f) With the conversion of a Hybrid Toll Plaza to a Conventional/ORT Toll Plaza, two Vehicle Classification Systems shall be applicable, namely:
  - (i) The Axle-based Vehicle Classification System in the mixed manual/ETC lane section of the Conventional/ORT Toll Plaza.
  
  - (ii) The Volumetric Vehicle Classification System in the Open Road Tolling section of the Conventional/ORT Toll Plaza.

- (g) The implementation of the ultimate Open Road Tolling at a particular Toll Plaza will be triggered if any of the following events occur:
  - (i) The annual average daily traffic volume (AADT) at the Toll Plaza exceeds 90 000 vehicles per day for a calendar year, or
  - (ii) The required number of Dedicated ETC lanes in a traffic direction exceeds 5, or
  - (iii) The ETC market share at the relevant Toll Plaza exceeds 70%.

## **2.4 Electronic Toll Collection Context**

- 2.4.1.1 The Employer requires and promotes the maximisation of the market share of electronic toll collection as a preferred method of payment at Toll Plazas. The Contractor shall cater for this Employer objective in its design, build and operations of the Works.
- 2.4.1.2 The Employer has instituted a national Electronic Toll Collection ("ETC") interoperable solution, which will allow a Road User to register an ETC toll account that shall be valid for use across all current and future ETC enabled toll Plazas nationally.
- 2.4.1.3 A Transaction Clearing House ("TCH") shall undertake central ETC Customer Account management and transaction clearing services in respect of all ETC transactions. This will include all ETC transactions generated by the Employer (at CTROM or other toll projects) and those ETC transactions generated by the current Concessionaires.
- 2.4.1.4 A Violations Processing Centre ("VPC") shall process and collect all unpaid toll fees related to ETC transactions for all "opt-in" Toll Agencies. It is envisaged that once "boom-up" or ORT type operations commence, that Toll Agencies would opt in to the VPC in terms of debt collection processes. In the context of CTROM projects, the Employer will instruct either "opt-in" or not, depending on the type of operation.

## **2.5 Contracted Parties and Responsibilities within CTROM**

### **2.5.1 The Employer**

2.5.1.1 The Employer is:

- (a) The funder of the Project.
- (b) The supplier of selected Employer's Facilities and associated Employer's Equipment;

- (c) The owner of all Plant and Materials as supplied by the Contractor under this Contract, and the licensee of all Contractor's Documents also supplied under this Contract (as contemplated in Volume 1, Book 2);
- (d) The provider of Intelligent Transport System (ITS) services on the toll road network, if applicable, which systems include a freeway management system, with roadside surveillance, real time traveller information systems, and traffic management systems;
- (e) The facilitator in respect of Incident Management Systems (IMS) on national roads;
- (f) The provider of Road construction services through separately contracted parties which construction includes, inter-alia, periodic and special road maintenance, road upgrade and rehabilitation, and provision of new facilities; and
- (g) The provider of Routine Road Maintenance (RRM) services, through separately contracted parties, which maintenance includes, inter-alia, road surface maintenance, drainage maintenance, grass cutting and litter collection.

2.5.1.2 The Employer shall:

- (a) Set all policy and establish (all Business Rules) related to this Project. The Contractor is referred to Standard Specifications for Operations and Maintenance of CTROM Projects: ETC Interoperability – Business Rules (Volume 2 Book 8a), which Volume outlines Business Rules and principles already established;
- (b) Monitor and measure performance in terms of the Contract in order to ensure that the Contractor delivers in terms of the Employer's Requirements as outlined herein and in Volume 2, Books 2a to 8a;
- (c) Determine payments due to the Contractor based on, inter-alia, measurement and performance principles;
- (d) Issue Toll the System Commissioning Certificate(s), on successful Pre-commissioning testing, Commissioning testing and Trial Operation testing as and when required per section of the Works, and as further described in Particular Conditions of Contract (Volume 1 Book 2a), and in Standard Specifications for Operations and Maintenance of CTROM projects: Toll Systems (Volume 2, Book 4a);
- (e) With specific reference to ORT operations, if applicable, make available through third parties all law enforcement officers and officials required for this Project,; and

**2.5.2 Contractor**

2.5.2.1 The Contractor contracted for the CTROM project shall be fully responsible for:

- (a) The supply of the complete Toll System, as specified.
- (b) The establishment of all relevant interfaces between the back office system (of the Toll System supplied by the Contractor) and the TCH, VPC, and applicable Banks, as required.
- (c) The operation and maintenance of all Toll Facilities pertaining to the Project.
- (d) The collection and reconciliation of all toll revenue for all transactions, and in terms of ETC transactions, to transfer said transactions to the TCH for account processing.
- (e) The maintenance and support of the full Tolling System.
- (f) Facilities Maintenance of all Employer and Contractor-provided operational facilities;
- (g) The provision of selected Point of Presence Customer Service Facilities (Mobile Payment Stations and Customer Service Kiosks), if required for account registration and management purposes;
- (h) All operations for Point of Presence Customer Service (including account registration and Tag distribution to motorists) at all route-based Satellite Centres and selected Customer Service Kiosks, if required, using a common “account and Tag management” interface to the TCH system;
- (i) The operation of a “route-based” call centre for non-ETC related (or non-account related) call centre services.
- (j) The provider of route services, if required, which services may include, inter-alia, route patrols and accident and emergency response.

2.5.2.2 A three (3) – way cooperation and interfacing agreement (between the Employer, the new TCH / VPC operator(s), and the Contractor) will be developed to manage all interfacing and coordination between the parties. This cooperation and interfacing agreement will contain similar performance related terms and conditions as does this Contract.

2.5.2.3 The Contractor shall further be required, in the final year of the Operations Service Period, to cooperate fully with the new contractor appointed by the Employer and to provide managed access to this contractor on Site in order for them to carry out tasks related to mobilisation,

Toll System development, installations and testing under the new contract. Cooperation shall include, inter-alia, continuous liaison, information and documentation transfer (where required in terms of the Contract), etc. The Project "Hand-Back" requirements are further described in The Standard Specifications for Operations and Maintenance of CTROM projects: General (Volume 2 Book 2a).

### **2.5.3      *The Employer's Representative***

2.5.3.1      The Employer's Representative contracted by the Employer for the CTROM project shall be responsible for the administration of the Contract on behalf of the Employer, which includes, inter-alia:

- (a)      Those responsibilities as outlined in The FIDIC Conditions of Contract for Design, Build and Operate Projects (2008) (Volume 1 Book 1);
- (b)      Performance monitoring and audits; and
- (c)      Payment certification.

### **2.6      The Employer's Baseline Principles**

2.6.1      The Employer has previously established various baseline principles upon which CTROM projects are based. These principles are reflected in the contents of the Employer's Requirements contained Volume 2, Books 1a to 8a. One important baseline principle is that of national ETC interoperability.

### **2.7      The National ETC Interoperability Framework**

2.7.1      The following highlights some of the Employer's Requirements in respect of establishing the full national ETC interoperability framework:

#### **2.7.1.1      Central Transaction Processing**

- (a)      The TCH shall be required to provide functions which will include (but not be limited to) the following:
  - (i)      A single processing centre for establishing and maintaining of ETC Customer accounts nationally;
  - (ii)     Publish periodically online the Validation Lists (in respect of statuses and vehicle classes) to all ETC-enabled Toll Agencies;

- (iii) ETC transaction reporting to all ETC Customers nationally through the provision of statements and/or tax invoices via the national website, SMS, e-mail, by post and/or TCH Call Centre;
- (iv) Toll Agency reimbursement by the TCH for all compliant ETC Transaction Records sent to the TCH within the required timeframes; and
- (v) Tag procurement from Employer nominated supplier(s), warehousing and bulk issuing to Toll Agencies for distribution to Road User.

#### 2.7.1.2 Guaranteed Payment for "Compliant" ETC Transaction Records

- (a) The TCH Entity shall guarantee payment to all ETC enabled Toll Agencies for all Compliant and Complete Transaction Records in their lanes that are transmitted to the TCH, subject to the conditions as contained in Volume 2 Book 8a (Business Rules).
- (b) The TCH shall publish an account Validity List to all ETC enabled Toll Agencies in accordance with established Business Rules. This shall likely occur more frequently in urban areas where telecommunications capacities are greater.
- (c) Class and tariff discrepancies shall be dealt with according to Business Rules set by the Employer.

#### 2.7.1.3 Exempt and Free Passage Customer Accounts

- (a) In South Africa, the South African Police Services (SAPS) and all South African National Defence Force (SANDF) vehicles are exempted through legislation from paying tolls.
- (b) 100% discounted passages may also be granted (provided such granting is on the Toll Agency's approval) for all emergency vehicles using a toll route, such as ambulances, fire and road traffic police.

#### 2.7.1.4 Discounts

- (a) All discounts, other than National Rewards Programmes managed by TCH, will be applied at the Toll Agency level, and not at the TCH;

#### 2.7.1.5 Customer Transaction Queries

- (a) In the case where an ETC Customer queries the toll amount charged to their account based on the vehicle class or applicable local discounts, the TCH shall

request verification of the class and toll amount due from the Toll Agency where the Transaction Record occurred, if the Transaction Record was not a class corrected Transaction Record in the first place, in which case the images should be part of the Transaction Record, if available.

2.7.1.6 Central Account Management and Tag Distribution to Toll Agencies

- (a) The establishment and maintenance of ETC Customer accounts shall be centralised on the TCH database. Remote Customer Service outlets (operated by Toll Agencies) shall utilise secure methods to access the TCH central account management system to set up Customer accounts on behalf of the TCH.
- (b) Any Customer Service outlet (for a Toll Agency) can arrange for the distribution or replacement of Tags to the Road User as defined in the TCH Business Rules. The Toll Agencies Customer Service outlet shall obtain Tag stock from the TCH.

2.7.1.7 Central Violation Processing

- (a) Toll Agencies shall have the option to process their violations through the VPC or to handle violations internally. It is envisaged that Toll Agencies (including the Employer, in the case of CTROM) that operate in an ORT or non-barrier ETC environment may elect to use the services of the VPC.

2.7.1.8 Option to Use the VPC

- (a) The Contractor "Opting-in" to use the VPC shall be upon "instruction" of Employer.
- (b) Participating Toll Agencies shall transmit all Transaction Records to the TCH who shall in turn submit all potential violation Transaction Records (i.e. unpaid transactions, including those not allocated to an account) to the VPC for further processing. Associated images shall also be included in the Transaction Record. Each potential violation shall then be either:
  - (i) Converted to a paid toll Transaction Record when matched to a valid active account (and invoiced accordingly);
  - (ii) Processed as a violation;
  - (iii) Written off (by the relevant Toll Agency) as an "uncollectable" Transaction Record due to the lack of information; or
  - (iv) Sent back to the Toll Agency as non-compliant transaction.

- (c) The VPC will recover funds through payment of outstanding toll fees, administrative fees and fines, as assessed through the VPC process.
- (d) Administration fees and fines shall be defined by the Employer. Violators shall be given the opportunity to avoid the court system process by paying the toll plus pre-defined fees and fines to resolve the initial toll infringement within a specified period of time.
- (e) Because Toll Agencies and their Customer makeup shall vary, income and expenses for violation processing shall be maintained separately for each Toll Agency. Each Toll Agency's Transaction Records shall therefore be managed as individual Transaction Record streams. An "adjusted processing fee" shall be calculated for each Toll Agency based on the costs incurred and the income received by the VPC in processing their respective violations.

## **2.8 Functional Overview for CTROM Projects**

2.8.1 The following high level functional arrangements are applicable to this Project in terms of typical Toll Plaza and toll route operations and maintenance functions:

- (a) Tolling System supply, integration, on-time delivery and maintenance (across all functional components), is to be provided by the Contractor;
- (b) Toll System Commissioning Certification (this given successful Pre-commissioning testing, Commissioning testing and Trial Operation testing as and when required for each section of the Works), and performance monitoring, is to be provided by the Employer (or the Employer's Representative, as designated);
- (c) Collection and reconciliation of all toll revenue for all transactions is to be done by the Contractor, and in terms of ETC transactions, to transfer said transactions to the TCH for account processing;
- (d) Facilities Maintenance of the Employer's facilities is to be done by the Contractor. This maintenance excludes any Toll System maintenance, which is described elsewhere;
- (e) ITS Control Centre operations (where applicable) and routine road maintenance is to be provided by the Employer (through their appointed agents) through separate and existing contracts;
- (f) Route services to be provided by the Contractor, if required, which services may include, inter-alia, route patrols and accident and emergency response.

2.8.2 The following high level functional arrangements are applicable to this Project in terms of the ETC national interoperability framework:

- (a) Customer services are to be provided by:
  - (i) The Contractor for all "Point of Presence" Customer Services related to Customers requiring a service at any Contractor operated facility, and as instructed by the Employer;
  - (ii) The TCH Operator for national website-related Customer Services;
  - (iii) The TCH Operator for national Call Centre-related Customer Services;
  - (iv) The VPC Operator for infringement and violation status enquiries (including that through a web-interface which allows the viewing of violations).
  - (v) Marketing strategy development and management by the Employer, with the Contractor required to fulfil some agreed activities therein;
- (b) Tag issuing for the CTROM Project is to be undertaken by the Contractor. The TCH will procure all Tags, for the Contractor's onward issuing to Customers;
- (c) Tag distribution to Customers on the CTROM Project is to be done by the Contractor, (even if the Tag was applied for via the TCH web-interface or Call Centre), or by other Employer-appointed agencies;
- (d) ETC account-based Transaction Record processing and settlement is to be performed by the TCH;
- (e) Violation processing (the administration processes only) is to be done by the VPC, if opted into by the Employer for the specific Project under discussion;

### **3. KEY CTROM OBJECTIVES**

3.1.1 The objectives as outlined in this section are not exhaustive, and are merely provided for information purposes only.

#### **3.2 Key Operations Objectives from a Road User Perspective**

3.2.1 The following key objectives from a Road User perspective are applicable to this Project:

- (a) Free Flow, safe travel;

- (b) Courteous Customer Service;
- (c) Reliable and accurate billing or charging of toll fees, and the handling of enquiries;
- (d) Intelligent account-based information transfer to motorists (including inter-alia, sms and email notifications, Tag-beep type services, etc);
- (e) Intelligent route and traffic information through radio broadcasting, variable message signs, SMS's, etc (not included within the Contractor's Scope of Works); and
- (f) "Golden Hour" emergency services and response (operations not included within the Contractor's Scope of Works).
- (g) One toll Tag and one account for use on any ETC-enabled toll road nationally;
- (h) Easy and efficient account registration, Tag issuing, and payment solutions;

### **3.3 Key "Corporate" Objectives from an Employer Perspective**

3.3.1 Reference to The Standard Specifications for Operations and Maintenance of CTROM Projects: Performance Measurement (Volume 2 Book 6a).

3.3.2 The Employer is a commercially driven organisation with the following strategic objectives:

- (a) To provide high quality road infrastructure services to all Road Users;
- (b) To manage the road network and secure best value for money through appropriate planning, development, maintenance and rehabilitation;
- (c) To contribute to national economic transformation through promoting the fundamental principles of Broad Based Black Economic Empowerment (BBBEE);
- (d) To drive efficiency and continuously improve its business practices;
- (e) To sustain market confidence through sound corporate and financial governance;
- (f) To maintain a high level of proficiency across it's service providers;
- (g) To establish cooperative partnerships that augment it's capacity to deliver;
- (h) To communicate effectively the market solutions to stakeholders and Road Users; and

- (i) To actively promote the “user pay” principle.

### **3.4 Key “Project” Objectives from an Employer Perspective**

3.4.1 The key Project objectives, amongst others, from an Employer perspective, are as follows:

- (a) Maximise the income due to the Employer through, inter-alia, Road User compliance with the scheme;
- (b) Minimisation of the costs borne by the Employer;
- (c) Prevention of fraud;
- (d) The provision of high quality, courteous and efficient services to the Customer; and
- (e) The maintenance of legal and contractual compliance.

3.4.2 The Contractor shall be responsible in terms of the Contract for, inter-alia, the following strategies in order to achieve the Employer’s stated objectives:

- (a) Maximise of the number of accurately captured transactions;
- (b) Maximisation of the market share of registered account transactions (for ETC);
- (c) Optimisation of market Tag penetration;
- (d) Optimisation of the availability of toll payment channels (including those of manual toll transactions);
- (e) Maximise of the accuracy and integrity of processing transactions; and
- (f) Maximise the payment by Road Users of any violations prior to the violation entering the AARTO process for boom up or ORT type operations.

### **3.5 Critical Success Factors of the Project**

3.5.1.1 Reference to The Standard Specifications for Operations and Maintenance of CTROM Projects: Performance Measurement (Volume 2 Book 6a).

3.5.1.2 Given the above-listed key Project objectives, the following Critical Success Factors related to performance are relevant:

- (a) High levels of **public compliance**;
- (b) High levels of **operational performance** (using the tools for entity specific objectives);
- (c) High levels of **system availability** (tools for the job);
- (d) Highly **cooperative relationships** (with the Employer, between entities and with third parties); and
- (e) Highly flexible and **scalable operations**.

3.5.2 These Critical Success Factors form the underlying structure of the Contract Performance Management regime, as fully described in Standard Specifications for Operations and Maintenance of CTROM Projects: Performance Measurement (Volume 2, Book 6a).

3.5.3 The Employer further views its intended relationship with the Contractor as a collaborative, value-add partnership focussed primarily on jointly developing and implementing an optimal delivery solution for both the Toll System supply and the operations, this in order to provide a safe and reliable journey for Road Users, the maximisation of the toll revenue stream for the Employer and minimisation of any Project-related risks, this in exchange for a fair and equitable reward.

## **4. COMMERCIAL FRAMEWORK**

### **4.1 Contract Period**

4.1.1 Refer to the Project Document (Volume 3).

### **4.2 Key Employer Policy Decisions**

#### **4.2.1 Traffic and Violation Risk**

4.2.1.1 The apportionment traffic and violation risks is outlined in Standard Specifications for Operations and Maintenance of CTROM Projects: Performance Measurements (Volume 2 Book 6a);

4.2.1.2 The Contractor shall, in his collaborative and value add partnership with the Employer, also serve and communicate with the Road User in an effective, efficient and courteous manner in order to maximise compliance related to Customer Account registration and toll payments, and as a result thereof, will maximise toll revenue;

**4.2.2 Toll System Performance Risk**

4.2.2.1 The Contractor shall be responsible for the Toll System performance throughout the life of the Project, this against the prescribed service levels as outlined in The Standard Specifications for Operations and Maintenance of CTROM Projects: Performance Measurement (Volume 2 Book 6a) and the maintenance requirements as outlined in The Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a);

**4.2.3 Project Branding**

4.2.3.1 Tags and Customer Service interfaces shall be branded in terms of any interoperability and/or commercial branding requirements as determined by the Employer. All branding rules and guidelines shall be as set down by the Employer;

**4.2.4 National ETC Processing**

4.2.4.1 The TCH shall be the national repository of all ETC data for all ETC-enabled projects both current and in the future. Allowances shall therefore be made in the TCH system for this requirement. Further, the TCH, shall guarantee payment to all Toll Agencies for all Compliant and Complete Transaction Records submitted to the TCH within the specified timeframes as outlined in Standard Specifications for Operations and Maintenance of CTROM Projects: ETC Interoperability – Business Rules (Volume 2 Book 8a);

**4.2.5 Project Data**

4.2.5.1 The commercial value of any Project or account related data belongs to the Employer only, and not the Contractor, and hence any use or sale of data without the Employer's and Account holder's (if impacting on the Account holders privacy) specific approval is prohibited. The Contractor shall ensure that the privacy of any data related to the Account holder is protected at all times and is not open to abuse in any form whatsoever.

4.2.5.2 Further, any transfer of data to other Governmental agencies (on request/approval of the Employer) shall conform to the security and encryption standards as defined;

**4.2.6 Merchant Agreements**

4.2.6.1 The Employer shall establish all manual toll collection merchant type agreements with relevant acquiring bank(s), as applicable. The TCH will have its own merchant agreements with the Employer banking service and provider.

**4.2.7 Payment Card Industry (PCI) Standards**

4.2.7.1 PCI standards to be applied in accordance with all financial institutional requirements, when required, such that data required to trace customers with dishonoured credit cards can be retained and default customers pursued;

**4.2.8 Vehicle Classes**

4.2.8.1 As gazetted.

**4.2.9 Toll Tariffs**

4.2.9.1 Toll tariffs are provided in the Project Document (Volume 3).

**4.2.10 Discounts**

4.2.10.1 The Toll System shall be flexible in order to accommodate various discounts and differential toll pricing schemes. These typically include, inter-alia:

- (a) Frequent user discounts based on trip thresholds;
- (b) Local and Regional User discounts;
- (c) Time and traffic density discounts.

**4.2.11 User Types and Payment Methods**

4.2.11.1 The following user types shall be applicable on CTROM Projects:

- (a) Conventional users (cash or credit card for manual transactions);
- (b) Account holders with Tags (using ETC or ORT lanes);
- (c) Account holders without Tags, known as VLN accounts (using ETC or ORT lanes);
- (d) Violators (including potential, intentional and unintentional violators);
- (e) Exempt users.

**4.2.12 Tags**

4.2.12.1 All Tags:

- (a) Shall be issued to Toll Agencies by the TCH; and
- (b) Shall be issued to motorists by the Contractor on the conditions as directed by the TCH, subject to payment of a pre-paid account balance (to be determined by the Employer), unless a Tag is lost, stolen and/or abused, in which case the replacement Tag shall be issued on the payment of a fee (which fee is also to be determined by the Employer);

**4.2.13 Motorcycles**

4.2.13.1 Motorcycles shall be required to mount a Tag for all ETC transactions, and if they wish to qualify for a class A1 discount in the event that such discount is offered in an ORT lane;

**4.2.14 Exempt and Free Passages**

4.2.14.1 The South African Police Services (SAPS) and all South African National Defence Force (SANDF) vehicles are exempted, through legislation, from paying tolls;

4.2.14.2 100% discounted passages may also be granted (provided such granting is on the Employer's or the applicable Toll Agency's approval) for all emergency vehicles using a toll route, such as ambulances, fire and road traffic police;

**4.2.15 Class Discrepancies**

4.2.15.1 Class discrepancy posting to a Transaction Record is to be managed at project Back Office level.

4.2.15.2 The Actual Class, and not registered class, will be used, and in the case of ETC transaction, charged to the account.

**4.2.16 Account Registration**

4.2.16.1 Customer accounts (for ETC) are to be registered and opened electronically, either via a web-interface or at Customer Services terminals located at any Customer Services help desk (at remote points or at Toll Plazas). The following minimum information requirements need to be met (without physical proof, unless any specific circumstances dictate):

- (a) Account holder name;

- (b) Identification number;
- (c) Vehicle Registration;
- (d) Contact details (postal address, telephone, email, etc); and
- (e) Banking and / or credit card details, if applicable.

## 5. OPERATIONS FACILITIES

- 5.1.1 The Employer shall provide various facilities for both system housing and operations. These facilities, which are termed “**Employer’s Facilities**”, are described in the Project Document (Volume 3).
- 5.1.2 It is important to note that the Contractor will be solely responsible for all Facilities Maintenance (including, inter-alia, all utility costs, security and Employer’s Equipment maintenance, where provided) as specified for all Employer’s Facilities.

## 6. ALLOWANCE FOR PROJECT PHASES

- 6.1.1 The Contractor is to make appropriate allowance for all envisaged phased activities of the Project, which activities and phasing is summarised as follows:

### 6.1 Design Build Activities (in no particular order or priority or duration):

- 6.1.1 A **Project Optimisation Phase**, which phase shall be implemented at the election of the Employer, if deemed appropriate, is envisaged to be completed within two (2) months of the Commencement Date. This phase is required for the Contractor, together with the Employer, to optimise the tendered technical solution, if required. The following key activities will be included as tasks within this phase:
  - (a) The submission by the Contractor and approval by the Employer of the Contractor’s detailed programme to undertake the Works, this as specified in the Employer’s Requirements;
  - (b) The preparation and submission by the Contractor, and review by the Employer, of an outline of the proposed Toll System Functional Specifications as specified in the Employer’s Requirements, as well as a document summarising the key outcomes, decisions and Employer approvals related to the Project Optimisation Phase. The finalisation and approval of all the required Toll System Functional Specifications, which should include, inter-alia, the Contractor’s proposed system-related Business Continuity Plan and the proposed KPI system-related measurement inputs (which shall be largely automated), is required within four (4) months from the Commencement Date.

6.1.2 Tolling System design, supply, rollout, integration and testing (Pre-commissioning, Commissioning and Trial Operations) for all Works Sections as described in Particular Conditions of Contract (Volume 1 Book 2);

6.1.3 Operations facility design and supply, if applicable (i.e. Customer Service Kiosks and Mobile Payment Stations); and

6.1.4 Tolling System rollout, installation and testing related mobilisation.

## **6.2 Operations Service Activities**

6.2.1 A ***Project Optimisation Phase***, which phase shall be implemented at the election of the Employer, if deemed appropriate, is envisaged to be completed within 1) months of the Commencement Date. This phase is required for the Contractor, together with the Employer, to optimise the tendered operations solution, if so elected by the Employer, The following key activities will be included as tasks within this phase:

- (a) The development and submission by the Contractor and approval by the Employer of the Contractor's detailed programme (using the tendered programme as a reference);
- (b) The development and submission by the Contractor and review and approval by the Employer of the Contractor's Operations and Maintenance Plan (based on that tendered) for the project operations, which will include, inter-alia, his mobilisation and establishment plan, and the proposed operations-related Business Continuity Plan;
- (c) Agree between the Employer and the Contractor the required Customer Services Facilities footprint, if applicable; and
- (d) Agree between the Employer and the Contractor any particular marketing initiatives that may be relevant at the time.

6.2.2 Operations and Maintenance Mobilisation;

6.2.3 The provision of all operation and maintenance services as outlined in the Employer's Requirements.

## **7. GENERIC SCOPE OF WORKS**

### **7.1 Toll System Supply, Integration and Maintenance Requirements**

7.1.1 Reference to The Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Books 2a) and to The Standard Specifications for Operations and Maintenance of CTROM Projects: Toll Systems (Volume 2 Book 4a).

7.1.2 The Contractor shall assume full technical responsibility for the design, supply, installation, integration, testing, maintenance and support of all the Toll System elements. The Toll System software and hardware support, and maintenance, shall be carried out by the specialist supplier (selected by the Contractor and approved by the Employer), for the entire duration of the Project, unless otherwise specifically approved by the Employer.

7.1.3 The primary elements of the Toll System to be supplied and integrated are:

- (a) Toll Lane Equipment (conventional or hybrid lanes);
- (b) Back Office;
- (c) Road Side System (for Transaction Record capturing and framing) in an ORT environment;

7.1.4 The Contractor shall provide all Plant (equipment and systems, including all data communications interfaces and fall-back solutions), required for the complete Toll System supply, integration and maintenance operation, as well as any Contractor's Equipment (including consumables) and Contractor's Documents required, all of this in accordance with The Particular Conditions of Contract (Volume 1 Book 2), and the Employer's Requirements.

### **7.2 Toll Collection Services**

7.2.1 Toll Collection Services are detailed in The Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a), Standard Specifications for Operations and Maintenance of CTROM Projects: Performance Measurements (Volume 2 Book 6a) and The Standard Specifications for Operations and Maintenance of CTROM Projects: Methodology and Description of Payment Items (Volume 2 Book 7a);

7.2.2 The Contractor shall be responsible for, inter-alia:

- (a) The processing of all toll transactions (via the Back Office);
- (b) The forwarding of ETC transactions to the TCH;

- (c) The collection of all toll revenue; and
- (d) The reconciliation, and deposit (in the case of non-ETC transactions), of all toll revenue collected, into the Employer's back account.

7.2.3 The Contractor shall provide all Plant (equipment and systems, including all data communications interfaces and fall-back solutions), required for the complete toll collection service operation, as well as any Contractor's Equipment (including consumables) and Contractor's Documents required, all of this in accordance with The Particular Conditions of Contract (Volume 1 Book 2), and the Employer's Requirements.

### **7.3 Point of Presence Customer Services Operations**

7.3.1 Reference to The Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2, Book 2a);

7.3.2 The Contractor shall be responsible for all Point of Presence Customer Services at, inter-alia and if applicable:

- (a) Applicable Toll Plazas'
- (b) Strategically located Satellite Centres along the road network, if applicable;
- (c) Customer Service Kiosks (both permanent and temporary) located at strategic positions (such as shopping centres, etc), if applicable; and at
- (d) Varying other operating locations as deployed through the use of Mobile Payment Stations, if applicable.

7.3.3 The envisaged main functions related to Point of Presence (or face to face) operations are, inter-alia:

- (a) Information transfer to Road Users and Customers;
- (b) Registration of Customer accounts on application;
- (c) Issuing of Tags to Customers, if required (this includes not only the issuing of Tags to Customers applying at the Customer Service counters, but also those Customers that applied for Tags via the TCH Call Centre or website);
- (d) Receipt of account payments, invoice payments and Infringement Notice payments from Customers;

- (e) Updating account details, if requested by Customers;
- (f) Processing account closing requests;
- (g) Managing Tag maintenance interfacing (after sales support and maintenance);
- (h) Handling and processing of Customer and/or Road User queries and complaints;
- (i) Managing toll and account payments received at Point of Presence Customer Service facilities (i.e. banking and reconciliation).

7.3.4 It is important to note here that the Contractor shall provide all Plant (equipment and systems, including all data communications interfaces and fall-back solutions), required for the complete Point of Presence Customer Service operations and maintenance, as well as any Contractor's Equipment (including consumables) and Contractor's Documents required, all of this in accordance with The Particular Conditions of Contract (Volume 1 Book 2), and the Employer's Requirements.

7.3.5 All furniture required at the said facilities will be regarded as Contractor's Equipment, and shall be procured by the Contractor.

#### **7.4 Facilities Maintenance**

7.4.1 Reference to The Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a).

7.4.2 This aspect of the envisaged operations of the Works includes the full responsibility for maintenance of all Employer's Facilities and Employer's Equipment, including, inter-alia:

- (a) Toll Plazas;
- (b) Technical Shelters, if applicable;
- (c) Tolling Point gantries, if applicable;
- (d) Satellite Centres, if applicable;
- (e) Customer Service Kiosks (both permanent and temporary) at selected Commercial Outlets, if applicable; and
- (f) Mobile Payment Stations, if applicable.

- 7.4.3 Typical Facilities Maintenance works include, inter-alia:
- (a) Electrical and mechanical maintenance, for example, the maintenance of the generators, uninterruptible power supplies, etc;
  - (b) The maintenance of facility access control systems, fire detection and suppression systems, etc;
  - (c) Heating, Ventilation and Cooling (HVAC) system maintenance;
  - (d) Routine, preventative and/or corrective maintenance to the fabric and structure of the facilities and surrounds, including handyman type works;
  - (e) Cleaning and gardening services at all facilities, and
  - (f) Operational perimeter and infrastructure security (including systems and personnel) at all facilities.
  - (g) For ORT operations, Vehicle maintenance (including running costs), for all mobile enforcement vehicles only, if applicable. All other Contractor provided vehicles are the full responsibility of the Contractor in terms of provision and maintenance;
- 7.4.4 It is important to note that the Contractor shall provide all Plant (equipment and systems, including all data communications interfaces and fall-back solutions) required for the complete Facilities Maintenance operations and maintenance, as well as any Contractor's Equipment (including consumables) and Contractor's Documents required, all of this in accordance with The Particular Conditions of Contract (Volume 1 Book 2), and the Employer's Requirements.

## **7.5 The Supply of Operational Facilities**

- 7.5.1 The Contractor is referred to The Project Document (Volume 3) and to The Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a) for supply requirement details on the Customer Service Kiosks and Mobile Payment Stations that shall be provided and maintained by the Contractor under the Project.

## **7.6 Mobile Law Enforcement (for ORT Operations)**

- 7.6.1 The Contractor shall not be responsible for procuring mobile law enforcement personnel, however he shall be a key participant in the planning and coordination of these resources, together with the Employer and other Employer-nominated third parties, in order to achieve maximum operational effectiveness given both the need and incentive to reduce violations. The Standard Specifications for Operations and Maintenance of CTROM Projects: General

(Volume 2 Book 2a) specifies the details in terms of what management and coordination efforts, personnel, equipment and other resources shall be required to be provided by either the Contractor or the Employer. In this regard, the Contractor is to note that all mobile enforcement vehicles will be procured through a Provisional Sum in the Schedule of Payments, under instruction by the Employer. The maintenance and upkeep (including running costs), will be the responsibility of the Contractor, payment for which is included in the Schedule of Payments.

7.6.2 The Contractor shall be required to provide the Customer Services component of the mobile law enforcement operations. These operations are to carry precedence over any other operations related to the use of Mobile Payment Stations. In other words, the primary purpose of the Mobile Payment Stations is to support the Mobile Policing effort, and should only be used for other purposes if the said Mobile Policing is not required, and only on approval of the Employer.

## **7.7 General Operations Mobilisation and Training**

7.7.1 Reference to The Project's Mobilisation requirements as described in The Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a).

7.7.1.1 The Project's Mobilisation requirements as described in Volume 2, Book 2a.

### **7.7.2 Use of Local Labour and Resources**

7.7.2.1 The use of local resources is a key requirement in the Project.

### **7.7.3 Adherence South African Labour Laws**

7.7.3.1 The Contractor must at all times comply with all South African laws including South African labour laws, particularly given the fact that resource flexibility and scalability is required for operations ramp-up and ramp-down.

### **7.7.4 Training strategy**

7.7.4.1 Training is a key requirement of the Project, and the Contractor is expected to embrace the intended skills transfer requirement of the Project. To this end, the required training strategy and programme is expected to focus, inter-alia, on the following areas:

7.7.4.2 Preference training, which training requirements are spelt out in Part B.7 herein, and which include:

- (a) The implementation of a targeted higher education bursary scheme;

- (b) Generic skills training;
- (c) Entrepreneurial skills training; and
- (d) Technical skills training.

7.7.4.3 Systems and operations training (both during Mobilisation and throughout the Contract), provided to all operations and maintenance resources. The training should include, but not be limited to:

- (a) Health, safety and security;
- (b) Toll System operations and support;
- (c) Toll collection services;
- (d) Customer Service operations;
- (e) Back Office operations;
- (f) Toll System installation and maintenance; and
- (g) Facilities Maintenance.

7.7.4.4 The above training (preference and system and operations training) is applicable to the Contractor's own staff (internal) as well as external parties such as SMME and other subcontractor staff.

7.7.4.5 Training documentation (user manuals, works instructions, records and the like), are essential components within both the preference and operations and maintenance training regime. The Contractor is to ensure that this important requirement is implemented, managed and adhered to.

#### 7.7.5 ***Availability of Employer's Facilities***

7.7.5.1 All the Employer-provided facilities milestone delivery dates are listed in The Project Document (Volume 3).

## **8. ESTABLISHMENT, POWER SUPPLY AND OTHER SERVICES**

8.1.1 The Contractor is to make his own arrangements concerning his Project offices, construction camps or equipment storage yards/workshops during construction or system rollout, including any associated supply of electrical power and other services or utilities. No direct

payment shall be made for the provision of the camp Site, storage yards/workshops, or any electrical and other services. The cost thereof is deemed to be included in the Preliminaries and General section of the Schedule of Payments.

8.1.2 The Contractor shall always adhere to the Employer's Requirements related to environmental issues, and any other legal obligations.

8.1.3 ***The "Site"***

8.1.3.1 Further to the definition of "Site" as contained in FIDIC, the areas typically considered Site are:

- (a) All Toll Plazas;
- (b) Satellite Centres;
- (c) Mobile Payment Stations and Enforcement lay-byes;
- (d) Customer Service Kiosks (both temporary and permanent, including Boundary Plaza Kiosks);
- (e) Customer information desks or counters in public places;
- (f) Tolling Point gantries;
- (g) Technical Shelters;
- (h) Materials storage (including bonded storage) areas as provided by either the Contractor or the Employer in the Province of Gauteng, South Africa; and
- (i) Contractor's premises outside of those listed above.

8.1.3.2 The said premises or places or facilities are demarcated by the boundary lines as indicated on any issued drawings, or by the reasonable area required by the Contractor for the execution of the Works at any said premises, place or facility, and as agreed to by the Employer.

**9. QUALITY MANAGEMENT**

9.1.1 The Contractor shall formulate and implement Quality Assurance Plan based on industry best practice. The plan shall be implemented and fully functioning within three (3) months of Project award;

- 9.1.2 The Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a) outlines all Employer requirements related to the management of quality on this Project.

## **10. MANAGEMENT OF THE ENVIRONMENT**

- 10.1.1 The Contractor shall be responsible for construction and/or equipment installation works according to an Environmental Management Plan in terms of The Project Document (Volume 3).

- 10.1.2 The Contractor shall take the utmost care to minimise the impact of his establishment and other installation / construction activities on the environment and shall adhere to the requirements as set out in The Project Document (Volume 3). Where the Contractor fails to adhere to these requirements, the specifications of The Project Document (Volume 3) will provide the methodology and cost liability of remedy.

## **11. REQUIREMENTS IN TERMS OF GOVERNMENT'S PROGRAMME FOR BROAD BASED BLACK ECONOMIC EMPOWERMENT**

- 11.1.1 The Employer is committed to the implementation of Government's policies related to Broad Based Black Economic Empowerment (BBBEE), and in turn expects the same from the Contractor. Accordingly, it is a requirement that the Contractor familiarises himself with the Employer's Requirements that related to the BBBEE, which are outlined in The Project Document (Volume 3).

## **12. REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS**

- 12.1.1 Refer to The Project Document (Volume 3) for the Employer's Requirements in terms of the health and safety, which requirements are generic, and may therefore included aspects not directly relevant to this Contract.